

## REMARKS

This is a full and timely response to the non-final Office Action mailed May 1, 2006. Claims 1, 3 – 5, 7 – 12, 14, 16 – 18, 20 – 29, 31 – 40, 42 – 46, 48 – 52, 54 – 58, 60 – 64, and 66 – 116 are pending. Specifically, claims 1, 14, 26, 36, 48, 60, and 104 have been amended, claims 106 – 116 have been added, and claims 78 – 81 and 83 – 91 have been canceled without prejudice, waiver, or disclaimer. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

**I. Claims 1, 7 – 9, 11 – 12, 14, 20 – 22, 24 – 26, 31 – 33, 35 – 36, 40, 42 – 43, 48, 52, 54 – 55, 60, 64, 66 – 67, 71 – 77 and 92 – 105 are Patentable Over *Lin***

The Office Action rejects claims 1 – 2, 7 – 9, 11 – 12, 14 – 15, 20 – 22, 24 – 26, 31 – 33, 35 – 36, 40, 42 – 43, 48, 52, 54 – 55, 60, 64, 66 – 67, 71 – 77, and 92 – 105 under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 6,553,063 to Lin, *et al.* (“*Lin*”). For at least the reasons set forth below, the rejection should be withdrawn and the claims allowed.

***Independent Claim 1***

Applicant submits that independent claim 1 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 1.

For example, the Applicant respectfully submits that independent claim 1 defines over *Lin* for at least the reason that *Lin* fails to disclose, teach, or suggest “receiving information from a destination transceiver, the information comprising information for determining a desired fractional bit rate of the destination transceiver and ***further including logic for encoding an integer number of bits into a plurality of symbols at the***

*desired fractional bit rate* using a plurality of signal space constellation points supported by the destination transceiver” as recited in independent claim 1.

The Office Action recites that “Lin *et al.* invention does not expressly teach the *claimed step of the information comprising logic for encoding an integer number of bits into a plurality [of] symbols and relating to a plurality of signal space constellation points supported by the destination transceiver*”. (Emphasis in Original, Office Action, pg. 3). However, the Office Action indicates that “constellation selection controller 82 of a receiver 75 can inform demodulator 76, sequence estimator 78, demapper 79, and parallel-to-serial converter 81 of the pertinent details of the constellation being implemented at a particular moment, such as the current symbol alphabet and the number of bits in recovered symbol 86.” (Office Action, pg. 4). Further the Office Action indicates that “because the received symbols include the pertinent details of the constellation being implemented at a particular moment, one of ordinary skill in the art at the time the invention was made would have recognized that the received symbols include logic for informing the transmitter [sic] the current symbol alphabet and the number of bits in recovered symbol.” (*Emphasis added*, Office Action, pg. 4).

In other words, the Office Action apparently equates an alleged synchronization of the selection of symbol alphabets and the number of bits in recovered symbol with a synchronization of “logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate” as recited in claim 1. However, even assuming, *arguendo*, that Lin discloses a synchronization of the selection of symbol alphabets and the number of bits in recovered symbol, such synchronization assumes that each

transceiver includes matching constellation tables which include the logic needed for performing the encoding.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more *preselected* symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 1 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Hence, using similar reasoning, claim 1 is patentable over *Lin* for the additional and independent reason that *Lin* also does not disclose, teach, or suggest the feature of “*encoding an integer number of bits into the plurality of symbols at the desired fractional bit rate using the logic for encoding the integer number of bits into the plurality of symbols received from the destination transceiver*” as recited in claim 1.

Accordingly, independent claim 1 should be allowed for at least these reasons. Furthermore, because independent claim 1 is allowable over *Lin*, dependent claims 3 – 5, 7 – 12, 71 – 72, and 92 - 93 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 1, from which they depend.

### ***Independent Claim 14***

The Office Action alleges “claim 14 is rejected on the same ground as for claim 1.” (Office Action, page 7). However, Applicant submits that independent claim 14 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 14.

For example, the Applicant respectfully submits that independent claim 14 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “means for receiving information from a destination transceiver, the information comprising information for determining a desired fractional bit rate of the destination transceiver and ***further including logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver***” as recited in independent claim 14.

*Lin* also does not disclose, teach, or suggest at least the additional feature of “***means for encoding, based on the information from the destination transceiver, an integer number of bits into the plurality of symbols at the desired fractional bit rate using the logic for encoding the integer number of bits into the plurality of symbols received from the destination transceiver***” as recited in claim 14.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more ***preselected*** symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 14 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information

received also includes “logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Accordingly, independent claim 14 should be allowed for at least these reasons. Furthermore, because independent claim 14 is allowable over *Lin*, dependent claims 16 – 25, 73 - 74 and 94 – 95 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 14, from which they depend.

#### ***Independent Claim 26***

The Office Action alleges “claim 26 is rejected on the same ground as for claim 1.” (Office Action, page 8). However, Applicant submits that independent claim 26 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 26.

For example, the Applicant respectfully submits that independent claim 26 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “a receiver adapted to receive information from a destination transceiver, the information comprising information for determining a desired fractional bit rate of the destination transceiver and ***further including logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver***” as recited in independent claim 26.

*Lin* also does not disclose, teach, or suggest at least the additional feature of “a fractional encoder associated with the receiver, the fractional encoder adapted to ***encode the integer number of bits into a plurality of symbols at the desired fractional bit rate based on the logic for encoding the integer number of bits into the plurality of symbols received from the destination transceiver***” as recited in claim 26.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more ***preselected*** symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 26 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Accordingly, independent claim 26 should be allowed for at least these reasons. Furthermore, because independent claim 26 is allowable over *Lin*, dependent claims 27 – 29, 31 – 35, 75 – 76 and 96 - 97 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 26, from which they depend.

### ***Independent Claim 36***

The Office Action alleges “claim 36 is rejected on the same ground as for claim 1.” (Office Action, page 10). However, Applicant submits that independent claim 26 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 36.

For example, the Applicant respectfully submits that independent claim 36 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “providing information to a source transceiver, the information comprising information capable of being used to determine a fractional bit rate to use for transmitting data to a destination transceiver and ***further comprising logic adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver***” as recited in independent claim 36.

*Lin* also does not disclose, teach, or suggest at least the additional feature of ***“receiving a plurality of analog symbols from the source transceiver, each of the plurality of analog symbols corresponding to a signal space constellation point of the plurality of signal space constellation points supported by the destination transceiver”*** as recited in claim 36.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more ***preselected*** symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 36 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Furthermore, because independent claim 36 is allowable over *Lin*, dependent claims 37 – 40, 42 – 46, 77, and 98 – 99 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 36, from which they depend.

#### ***Independent Claim 48***

The Office Action alleges “claim 48 is rejected on the same ground as for claim 1.” (Office Action, page 11). However, Applicant submits that independent claim 48 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 48.

For example, the Applicant respectfully submits that independent claim 48 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “means for providing information to a source transceiver, the information comprising information capable of being used to determine a fractional bit rate to use for transmitting data to a destination transceiver and ***further comprising logic adapted to enable the source***



*transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver” as recited in independent claim 48.*

*Lin also does not disclose, teach, or suggest at least the additional feature of “means for receiving a plurality of analog symbols from the source transceiver, each of the plurality of analog symbols corresponding to a signal space constellation point of the plurality of signal space constellation points supported by the destination transceiver” as recited in claim 48.*

*Lin discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more preselected symbol alphabets.” (Emphasis added, col. 6, lines 26 – 28).*

Accordingly, Applicant has amended claim 48 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Accordingly, independent claim 48 should be allowed for at least these reasons. Furthermore, because independent claim 48 is allowable over *Lin*, dependent claims 49 – 52, 54 – 58 and 100 – 101 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 48, from which they depend.

### ***Independent Claim 60***

The Office Action alleges “claim 60 is rejected on the same ground as for claim 48.” (Office Action, page 11). However, Applicant submits that independent claim 60 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 60.

For example, the Applicant respectfully submits that independent claim 60 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “a transmitter adapted to provide information to a source transceiver, the information comprising information capable of being used to determine a fractional bit rate to use for transmitting data to a destination transceiver and ***further comprising logic adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver***” as recited in independent claim 60.

*Lin* also does not disclose, teach, or suggest at least the additional feature of “***a receiver adapted to receive a plurality of analog symbols from the source transceiver, each of the plurality of analog symbols corresponding to a signal space constellation point of the plurality of signal space constellation points supported by the destination transceiver***” as recited in claim 60.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more ***preselected*** symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 60 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Accordingly, independent claim 60 should be allowed for at least these reasons. Furthermore, because independent claim 60 is allowable over *Lin*, dependent claims 61 – 64, 66- 69, 70, 82, and 102 - 103 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 60, from which they depend.

#### ***Independent Claim 104***

The Office Action alleges “claim 104 is rejected on the same ground as for claim 1.” (Office Action, page 14). However, Applicant submits that independent claim 104 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 104.

For example, the Applicant respectfully submits that independent claim 104 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “receiving information from a destination transceiver, the information comprising an indicator of a desired fractional bit rate and ***further comprising logic for encoding an***

*integer number of bits into a plurality of symbols at the desired fractional bit rate using a plurality of signal space constellation points supported by the destination transceiver”* as recited in independent claim 104.

*Lin* also does not disclose, teach, or suggest at least the additional feature of “encoding the integer number of bits into the plurality of symbols *using the logic received from the destination transceiver at the desired fractional bit rate, the ratio of the integer number of bits and the plurality of symbols being a non-integer*” as recited in claim 104.

*Lin* discloses, at most, that “constellation mapper 47 can employ constellation table 48 to map each vector into transmission symbol 50 that is a member of one or more *preselected* symbol alphabets.” (*Emphasis added*, col. 6, lines 26 – 28).

Accordingly, Applicant has amended claim 104 to make clear that, in addition to notifying a corresponding transceiver of a desired fractional bit rate, the information received also includes “logic for encoding an integer number of bits into a plurality of symbols at the desired fractional bit rate.” Thus, not only is there a synchronization of the desired fractional bit rate, the information from the destination transceiver also includes the actual logic capable of being used to encode data using the designated fractional bit rate.

Accordingly, independent claim 104 should be allowed for at least these reasons. Furthermore, because independent claim 104 is allowable over *Lin*, dependent claims 105 – 116 are allowable as a matter of law for at least the reason that claims 105 – 116 contain all the features and elements of independent claim 104, from which they depend.

***Dependent Claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 77, and 92 – 103, and 105***

The Applicant submits that dependent claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 77, and 92 – 103, and 105 are patentable over *Lin* for at least the reasons set forth above with respect to their corresponding independent claims. Accordingly, claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 77, and 92 – 103, and 105 are allowable for at least the reason that they depend from their respective base claim, each of which are believed to be allowable as set forth above.

**II. Claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, and 68 – 69 are Patentable Over *Lin* and *Wei* in View of *Williams***

The Office Action also rejects claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, and 68 – 69 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin* and U.S. Patent No. 5,559,561 to Wei (“*Wei*”) in view of U.S. Patent No. 5,995,548 to Williams (“*Williams*”). However, the Applicant submits that the rejection to dependent claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, and 68 – 69 is rendered moot in light of the arguments made above and, therefore, claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, and 68 – 69 are allowable as a matter of law for at least the reason that claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, and 68 – 69 contain all the features and elements of their corresponding independent claims.

**III. Claims 5, 18, 29, 39, 46, 51, 58, 63, and 70 are Patentable Over *Lin and Wei* in View of *Brownlie***

The Office Action also rejects claims 5, 18, 29, 39, 46, 51, 58, 63 and 70 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin and Wei* in view of U.S. Patent No. 5,493,586 to Brownlie ("*Brownlie*"). However, the Applicant submits that the rejection to dependent claims 5, 18, 29, 39, 46, 51, 58, 63 and 70 is rendered moot in light of the arguments made above and, therefore, claims 5, 18, 29, 39, 46, 51, 58, 63 and 70 are allowable as a matter of law for at least the reason that claims 5, 18, 29, 39, 46, 51, 58, 63 and 70 contain all the features and elements of their corresponding independent claims.

**IV. Claims 10, 23 and 34 are Patentable Over *Lin and Wei* in View of *Eyuboglu***

The Office Action also rejects claims 10, 23 and 34 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin and Wei* in view of U.S. Patent No. 5,214,672 to Eyuboglu ("*Eyuboglu*"). However, the Applicant submits that the rejection to dependent claims 10, 23 and 34 is rendered moot in light of the arguments made above and, therefore, claims 10, 23 and 34 are allowable as a matter of law for at least the reason that claims 10, 23 and 34 contain all the features and elements of their corresponding independent claims.

**V. Prior Art Made of Record**

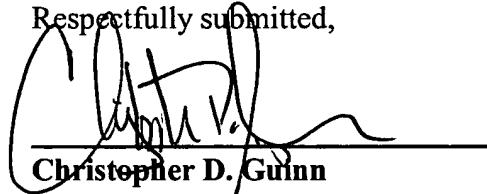
The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

### **CONCLUSION**

The Applicant respectfully submits that all claims are now in condition for allowance, and request that the Examiner pass this case to issuance. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this response. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted,



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